

**SECTION 2 (10.00 - 10.45):****Product Development in an Organisation**

How does an organisation develop products?



Why should you  
care about this?

**2nd Section - Learning objectives**

To be able to:

1. **Explain** the difference between organisational structure types.
2. **Explain** the benefits and problems of the different types of organisational structure.
3. **List** the ways in which an organisational may be structured or change.
4. **Identify** organisational structures and consider the important aspects.

How do  
organisation  
structures affect  
product  
development?

**What is an organisation?****Organisation**

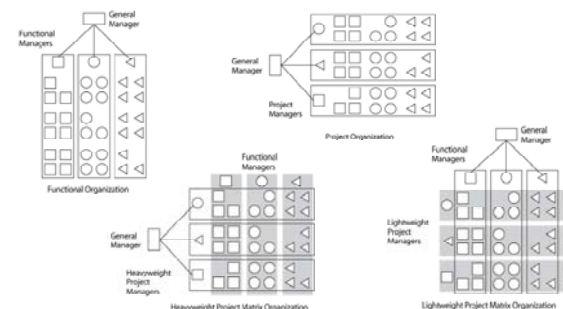
- Formed by 'links' between individuals

**Breakdown Structure**

- Reporting relationships: Managerial roles and subordinates- formal links
- Financial arrangements: Same budget
- Physical layout: share building/office- informal links

**Common links - organisational links may be aligned with:**

- Function. i.e. marketing, stress analysis, etc.
- Project. i.e. integrated project teams, work on same project
- Both

**Organisation types**

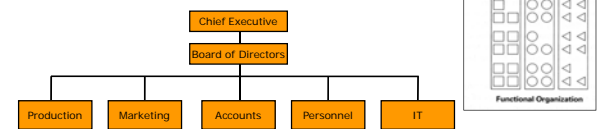
## Choosing an Organisational Structure

- **How important is cross-functional integration?** : do decisions span across functional areas
- **How critical is cutting edge functional expertise?** : If disciplinary expertise needs to be retained functional links are important, e.g. CFD (Computational Fluid Dynamic) in aircraft designs
- **Is there enough work for individuals from a function to be fully utilised?** : If only needed for a small duration, functional organisation preferred as many projects can draw on expertise on a part-time basis
- **How important is the product development speed?** : Project organisations tends to be faster: quicker to resolve conflict and faster transfer of information, e.g. pc manufactures

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## Functional Organisation

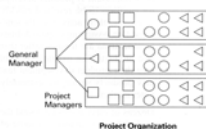
<b>Functional organisations</b>	<ul style="list-style-type: none"> <li>• Large batch &amp; mass production firms.</li> <li>• Mechanistic/hierarchical management.</li> <li>• Functional depts. (e.g. R&amp;D, production, sales) carry out repetitive tasks to maintain high volume.</li> <li>• Primary responsibility of projects passed through function</li> <li>• Customization development</li> </ul>
<b>Strengths</b>	<ul style="list-style-type: none"> <li>• Functional manager also responsible for resources</li> <li>• Fosters development of deep specialization</li> <li>• Career paths are functional until general manager level</li> </ul>
<b>Weaknesses</b>	<ul style="list-style-type: none"> <li>• Individual contribution of project measured rather than overall success of project</li> <li>• Coordination of different functions can be slow</li> <li>• Requires decomposing design task</li> </ul>
<b>Major issue</b>	<ul style="list-style-type: none"> <li>• How to integrate different functions to achieve a goal</li> </ul>



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## Project-Based Organisation

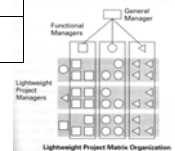
<b>Project-based organisation</b>	<ul style="list-style-type: none"> <li>• Project carries out all business functions normally performed by functional depts.</li> <li>• Report to project manager rather than line manager.</li> <li>• Adaptive, organic structures - cope with unusual, complex or changing projects.</li> <li>• Start-ups, dynamic markets</li> </ul>
<b>Strengths</b>	<ul style="list-style-type: none"> <li>• Dedicated to a single project- focus</li> <li>• Resources can be allocated appropriately by project</li> </ul>
<b>Weaknesses</b>	<ul style="list-style-type: none"> <li>• Difficulty for individuals to gain specialized functional capabilities</li> </ul>
<b>Major issues</b>	<ul style="list-style-type: none"> <li>• How to maintain functional expertise over time</li> <li>• How to share functional technical learning from one project to another</li> </ul>



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## Matrix Lightweight Organisation

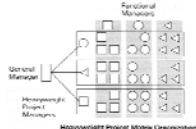
<b>Lightweight organisation</b>	<ul style="list-style-type: none"> <li>• Business functions carried out within projects &amp; along functional lines</li> <li>• Two-dimensional supervision- project and functional managers</li> <li>• Lightweight-functional manager greater responsibility</li> </ul>
<b>Strengths</b>	<ul style="list-style-type: none"> <li>• As function- but improved co-ordination</li> <li>• Integrated project &amp; functional resources</li> <li>• Maintains development of specialization and expertise</li> </ul>
<b>Weaknesses</b>	<ul style="list-style-type: none"> <li>• Key resources allocated by functional manager</li> <li>• Requires more managers than a non-matrix organisation</li> </ul>
<b>Major issues</b>	<ul style="list-style-type: none"> <li>• How to balance function and projects</li> <li>• How to evaluate projects and functional performance</li> </ul>



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## Matrix Heavyweight Organisation

<b>Heavyweight Organisation</b>	<ul style="list-style-type: none"> <li>• Business functions carried out within projects &amp; along functional lines</li> <li>• Two-dimensional supervision – project members report to project manager and line manager.</li> <li>• Automobile, electronics, aerospace.</li> </ul>
<b>Strengths</b>	<ul style="list-style-type: none"> <li>• Integrates project &amp; functional resources</li> <li>• Some functional specialization retained</li> <li>• Heavyweight –project manager more responsibility</li> <li>• PM-direct access and responsibility of work</li> </ul>
<b>Weaknesses</b>	<ul style="list-style-type: none"> <li>• Requires more managers than non-matrix organisations</li> </ul>
<b>Major issues</b>	<ul style="list-style-type: none"> <li>• How to balance functions and projects</li> <li>• How to simultaneously evaluate project and functional performance</li> </ul>



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What type of organisation is DTU?

Why is it structured like this?

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## Case Study. AMF Bowling

### Product

- Bowling equipment, includes pin spotters, ball returns, scoring equipment
- Market-pull enterprise- seeks out technology required

### Competitive advantage

- Strong marketing
- Brand recognition
- Large installed base of equipment- no single technology

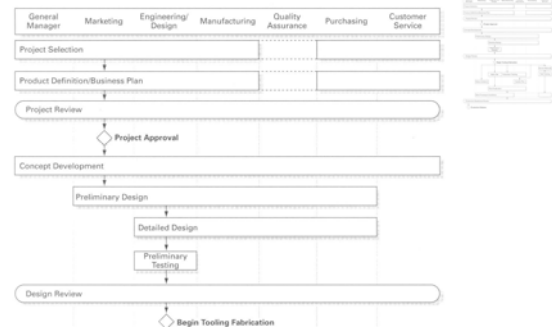


### AMF Products

- Assembled use traditional manufacturing methods: moulding, casting, machining, manufacturing
- Non-customised products,
- Development work- create new models rather than customise existing products

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## Case Study. AMF Bowling



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## Case Study. AMF Bowling

### Light-weight matrix

- **Main functions:** Engineering, manufacturing, marketing, sales, purchasing and quality assurance
- **Product development projects has function areas**
- **Light-weight matrix:** Strengthens functions at expense of project efficiency
- Small product development projects with 1 or 2 larger projects
- Many members of smaller projects part-time
- Strong functional links- easier assignment of staff to many projects and balancing workload
- Lean company: not many staff < 100 people, financial incentives (shares), co-located, members of project look beyond function

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## Other ways to structure an organisation

- **By customer:** where different customer groups have different needs
- **By process:** where products have to go through stages as they are made
- **By area:** geographical or regional structure

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## Structures change

- As a company grows, organisational structures must change with it. The process of change goes through the following stages:

### • Stage 1: through creativity

- Entrepreneurs create products/services, for which there is a market
- Small business structures, no formal policies, objectives
- Founder involved in all stages

### • Stage 2: through direction

- Company grows in size
- Founder no longer solely responsible for decision-making
- Policies, procedures and plans created
- Rules, systems for recruitment/firing

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## Structures change

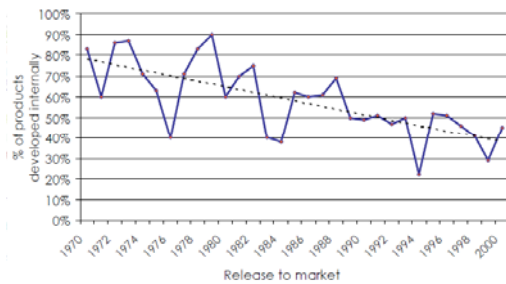
### • Stage 3: through delegation, coordination and collaboration

- Problems occur e.g.
  - Structure too rigid, decision-making too centralised
- Delegations of duties,
- Systems for employees to communicate
- Senior management focus on long-term issues

Distributed teams and external collaboration is becoming more and more important.

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## The Rise of Open Innovation in the Pharma Industry



Fonte: Evaluate Pharma; ISO Healthcare

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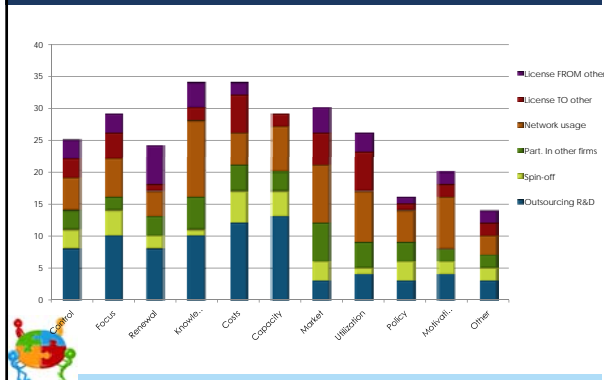
mediconValley

## Open Innovation in Medicon Valley

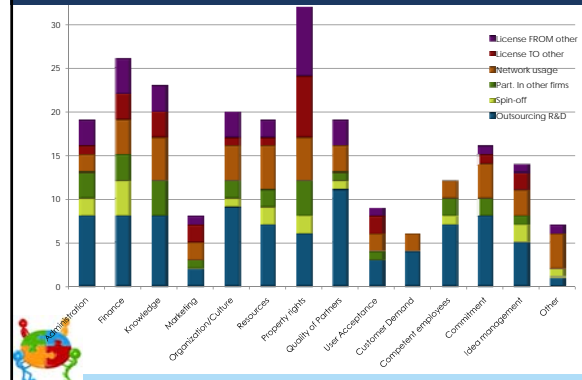


Preliminary Survey Results

## General - Drivers



## General - Barriers



## Summary

- Create or adapt organisational structures and processes around the market in which the product resides
- It is important to understand organisational structures before:
  - Selecting projects (next section)
  - Assessing your innovation management strategy (section 4)
  - Outlining your product development process (section 5)

### Meeting the learning objectives?

To be able to:

1. Explain the difference between organisational structure types.
2. Explain the benefits and problems of the different types of organisational structure.
3. List the ways in which an organisational may be structured or change.
4. Identify organisational structures and consider the important aspects. – Next exercise!

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## Exercises (in pairs)

### 1) ANSWER EITHER:

A. What is the likely organisational structure of the company you are conducting your project with?

OR:

B. What was the organisational structure of a previous company you have worked with?

2) Write 3 questions that you will ask of your project company in order to appreciate the structure of the company.

Hint: Try to elicit elements of the company that you think may be important to know for developing your product

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